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AUTHOR Garrison, Karen R.; Brown, Robert D.
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ABSTRACT

This study investigated the effects of two treatment conditions--cognitive modification and informed teachers--on communication apprehension in children in grades 4, 5 and 6. The subjects were 109 students who scored one standard deviation or higher above the mean for their grade level on the Measure of Elementary Communication Apprehension (MECA). The students were assigned to one of three treatment conditions: (1) control; (2) informed teacher (in which the teacher was given a written explanation of communication anxiety (CA), was notified which of his or her students were high in CA; and was given written suggestions for dealing with CA in the classroom), and (3) cognitive modification (an approach combining systematic desensitization and cognitive restructuring). The cognitive modification treatment sessions consisted of ten 45-minute sessions over a period of five weeks. The MECA was used as a post treatment measure of failed. These results indicate a relation between how children organize or tests indicated that cognitive modification significantly reduced communication apprehension, while informed teachers did not. Grade level and interaction effects were not significant. Both teachers and students found the time spent in the CM classes worthwhile. Results suggest that removing students from regular classroom activities to participate in a CM class can be justified to parents, teachers, and administrators. (Author/SS)

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THE EFFECTS OF COGNITIVE MODIFICATION AND INFORMED TEACHERS ON COMMUNICATION APPREHENSION IN CHILDREN

Karen R. Garrison
Auburn University

Robert D. Brown
University of Nebraska-Lincoln

Abstract

This study investigated the effects of cognitive modification and informed teachers on communication apprehension in children. Subjects were 109 fourth, fifth, and sixth grade students in the Lincoln, Nebraska, public schools. Analysis of covariance and Scheffé tests indicated that cognitive modification significantly reduced communication apprehension, while informed teachers did not. Grade level and interaction effects were not significant.

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THE EFFECTS OF COGNITIVE MODIFICATION AND INFORMED TEACHERS ON COMMUNICATION APPREHENSION IN CHILDREN

An inability to communicate effectively can have negative and far reaching consequences in every aspect of an individual's life. The ability to communicate with family, friends, co-workers, supervisors, and small to large groups is indispensable in our society today. Individuals are often evaluated on the basis of communication encounters, and those who experience difficulty are unlikely to realize their maximum potential. Communication apprehension, a construct which has received considerable research attention under a variety of names in the fields of communication, education, and psychology, can be isolated as one cause of an inability to communicate effectively.

Communication apprehension (CA) is defined as an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons (McCroskey, 1977). In the field of communication, the term CA subsumes a number of other labels including "stage fright" (cf. Clevenger, 1959), "speech anxiety" (cf. Giffin & Bradley, 1969), "reticence" (cf. Phillips, 1968; Phillips & Metzger, 1973), "audience sensitivity" (cf. Paivio, 1964), "social withdrawal" (cf. O'Connor, 1969, 1972), and "shyness" (cf. Zimbardo, 1977). These terms reflect the same basic component: a fear of communication situations which goes beyond the amount normally expected. Individuals with high communication apprehension not only experience more than the normal stage fright behaviors during public speaking, they also experience problems in communicating in small groups and in interpersonal transactions. Because these individuals anticipate negative feelings and outcomes from communication, they either avoid communicating, if possible, or experience anxiety feelings when forced to communicate (McCroskey & Wheeless, 1979).

The nuclear conceptualization, a fear of communicating leading to withdrawal, has been investigated by and is relevant to a number of fields other than communication, including counseling, education, educational psychology, psychiatry, and psychology (cf. Berecz, 1968; Bornstein, Bellack, & Hersen, 1977; Kagan & Moss, 1962; O'Connor, 1969, 1972; Patterson, 1964; Paul & Shannon, 1966; Robinson, Vitale, & Nitsche, 1962; Twentyman & McFall, 1975; Zimbardo, 1977). While the designation "communication apprehension" is used throughout this paper, it should be stressed that the concept itself is multidisciplinary. Researchers would, therefore, benefit from a pluralistic stance when investigating communication apprehension.

COMMUNICATION APPREHENSION AMONG CHILDREN

Recent research indicates that at least eleven percent of the elementary student population has severe communication apprehension, and an additional 20 percent, or a total of 31 percent or more, have sufficient apprehension to warrant treatment outside of the classroom (J. Garrison & K. Garrison, 1979). Consequently, there are millions of children and young people who are "communication apprehensives" and for whom little or no special help is currently available in our elementary and secondary schools.

It is clear that CA negatively affects both the quantity and quality of oral communication situations in which children participate. According to Zimbardo (1977) shy students do not readily engage the teacher on a personal level, do not allow her/him to offer the counsel and expertise they are ready to give, and often offer little or no feedback for the efforts the teacher is making. Communication between teacher and student is essential to learning, yet the shy, apprehensive student may have trouble in both asking for and accepting assistance.

As McCroskey and Andersen (1976) note, classroom questioning aids the student in concept clarification and concept integration, and also helps to determine the pace of content presentation. A learning environment that emphasizes voluntary student-initiated interaction with teachers, or one that evaluates students on the basis of oral performances such as giving a report, reading out loud, or participating in group discussions, penalizes the shy student who is too apprehensive to engage efficaciously in the behaviors required to achieve success (cf. Burgoon, 1975; McCroskey & Andersen, 1976; McCroskey & Wheeless, 1979; Zimbardo, 1977). In such a learning environment, the shy student may fall behind, or may actually be unable to express learning which has occurred. It is also possible that a high level of apprehension interferes with the cognitive processes required for learning; high apprehension may negatively affect attention, assimilation, discovery, and other essential processes.

The way that the high apprehensive student feels about herself/himself, and about school, might also leave its mark on achievement. Several researchers have found a strong relationship between low self-esteem and high CA, and between low self-acceptance and high CA (cf. Lustig, 1974; McCroskey, Daly, Richmond, & Falcione, 1977; Snavely, Merker, Becker, & Book, 1976; Snavely & Sullivan, 1976). According to McCroskey (1977), the studies which have focused on general personality structure and CA describe the individual with high CA as "typically an introverted individual who lacks self-esteem and is resistant to change, has a low tolerance for ambiguity, and is lacking in self-control and emotional maturity" (p. 84). A high apprehensive student who is low in self-esteem and self-acceptance, and who is negatively perceived by others, might not realize her/his maximum potential in the classroom.

A student's attitude towards school might also be an influential force. Hurt and Preiss (1978) found, in their study of junior high school students, that as the level of communication apprehension increased, the student's attitude towards school became more and more negative. As with self-esteem and self-acceptance, the causal relationship remains unclear. It is clear that CA is correlated with student behaviors in the classroom, teachers' expectations, low self-esteem and self-acceptance, students' attitudes toward school, and achievement.

The problem of social withdrawal and social interaction anxiety among children has frequently been articulated in the field of psychology (cf. Bornstein, Bellack, & Hersen, 1977; Kagan & Moss, 1962; Robinson, Vitale, & Nitsche, 1962). Children deficient in social skills should receive assistance. The lack of social skills appears to generate social failure,

and social withdrawal in children may set the stage for inappropriate, inadequate interpersonal functioning as adults. Communication apprehension characteristically leads to withdrawal, and social withdrawal can have debilitating and far reaching effects on children's present and future lives.

RESEARCH QUESTIONS

The purpose of this study was to develop a cognitive modification (CM) treatment for children, and to study its effects on high apprehensive 4th, 5th, and 6th grade students. Meichenbaum (1972) describes CM as a treatment approach which combines systematic desensitization (SD) and cognitive restructuring (CR). SD and CR have been used successfully in the treatment of communication apprehension and similar anxieties among adults (cf. Ellis, 1963; Fremouw & Harmatz, 1975; Fremouw & Scott, 1979; McCroskey, 1970, 1972; Paul & Shannon, 1966). While CM is a relatively inexpensive, easily administered procedure, it is time consuming, and if done during the school day would require taking the student out of the regular classroom. Teachers, parents, and administrators may object unless it can be shown that such a loss of instructional time is worthwhile--that teachers themselves cannot treat CA within the classroom environment. The informed teacher, who is given an explanation of CA, the names of her/his students who are high apprehensives, and ideas for effectively dealing with CA in the classroom, might be able to reduce CA. Additionally, previous research has indicated that the level of CA among children increases significantly as children progress through the elementary grades (cf. J. Garrison & K. Garrison, 1979; Shaw, 1966; Wheeless, 1967). For this reason, it can be posited that grade level is a factor in the reduction of CA among children. Therefore, the major questions of concern in this study were: 1) would a cognitive modification treatment and/or informed teachers significantly reduce communication apprehension among 4th, 5th, and 6th grade students? 2) would communication apprehension be significantly different among students in the different grade levels? and 3) would there be a significant interaction between treatment conditions and grade levels?

METHOD

Sample

One hundred and twenty six students who scored one standard deviation or higher above the mean for their grade level on the Measure of Elementary Communication Apprehension (MECA) were chosen as subjects (J. Garrison & K. Garrison, 1979). Due to attrition, a final sample size of 109 was obtained. The students were enrolled in the fourth, fifth, and sixth grades in five elementary schools in Lincoln, Nebraska. The schools were chosen using stratified random sampling to ensure that different socio-economic areas of the city were represented; the sampling ratio by elementary school was one-to-five.

Instrumentation

MECA was used as both the pre and post test of communication apprehension among children. This instrument requires students to respond to 20 Likert-type statements utilizing smiling and frowning faces. MECA possesses both face validity and concurrent validity. The concurrent validity is shown by MECA's moderate positive relationship to three other existing measures of CA. Test-retest data on MECA have shown a reliability of .80 (J. Garrison & K. Garrison, 1979). Before this study was conducted, several MECA items were revised. The original and revised items are presented in Table 1. Reliabilities on the revised questionnaire were .64, .72, and .77 for fourth, fifth, and sixth grade students (N = 776, $\overline{X}$ = 52.68, SD = 8.94).

Insert Table 1 about here

Procedures[2]

The 126 fourth, fifth, and sixth grade students were randomly assigned to three treatment levels--control, informed teachers, and cognitive modification. However, the informed teachers were given information on classroom techniques for reducing CA, making it necessary to ensure that these teachers did not also have students assigned to the control group or cognitive modification group in their rooms. Therefore, students in the informed teacher group were selected first. This was done by randomly selecting teachers (or classrooms) until the appropriate number of fourth, fifth, and sixth grade students had been selected. The remaining students were then randomly assigned to the control and cognitive modification groups.

Four leaders (two female, two male) and two substitutes were trained to teach the cognitive modification (CM) classes. All of the leaders and substitutes had previously had similar training and experience in leading systematic desensitization classes for college students. Before the cognitive modification treatment could begin, primary and alternative hierarchies of fear-arousing situations were needed. These hierarchies were constructed by visiting two classrooms; each class contained 21 students in both the fifth and sixth grades. The two hierarchies and the mean score for each item are included in Table 2. The informed teachers were sent the names of their students who scored above one standard deviation on MECA, an explanation of CA, and ideas for effectively reducing CA in the classroom. The informed teachers received this information at the same time that the CM classes began.

Insert Table 2 about here

A modified cognitive modification procedure was developed for use with children (cf. Meichenbaum, 1971, 1972; Weissberg, 1975; Weissberg & Lamb, 1977). This procedure was then referred to as a class entitled Self Confidence in Speaking. Five classes were offered, with class size ranging from six to ten. The four class leaders were randomly assigned, with one leader teaching two separate classes. The classes consisted of ten, 45 minute sessions, over a period of five weeks.

The procedure for the first class session and a detailed outline of the cognitive modification procedure are presented in Table 3. The class leaders spent the first five to ten minutes of each class session discussing positive and negative self-statements and the students' feelings about the class and the situations presented. The last three to five minutes of class were also devoted to discussion and answering any questions the students might have.

After the initial discussion, each class session began with the deep muscle relaxation tape. While deeply relaxed, the children were instructed to imagine that they were about to enter into a situation (coping imagery), and then instructed to model coping and task-relevant statements. Initially the children were instructed to overtly model (think out loud) the coping statements made by the class leader; later they were instructed to covertly model (think to yourself) the statements. Next, the children were instructed to imagine that they were in the situation (mastery imagery). When they were able to successfully complete the mastery imagery, the children were instructed to model self-reinforcing statements, at first overtly and later covertly (coping and self-reinforcing statements are also included in Table 3).

If relaxation could not be maintained during the mastery imagery, the child indicated this by signaling the class leader. If this occurred, the class leader terminated the image, repeated part of the relaxation procedure, and then began again by having the children imagine that they were about to enter into a situation. If a child still could not remain relaxed when imagining that they were in the situation, the class leader then switched to an equivalent or lower item on the alternative hierarchy.

Insert Table 3 about here

RESULTS

An analysis of variance (ANOVA) was used to test the pretest treatment levels, grade levels, and the treatment by grade interaction. All statistical tests were made at the $p < .05$ level. As expected, significant differences existed in the pretest means for grade level ($F = 4.61$, $df = 2, 100$, $p. < .01$). However, a significant difference was also found to exist among the treatment groups ($F = 3.19$, $df = 2, 100$, $p < .04$). The interaction was not significant ($F < 1$, $df = 4, 100$, $p > .56$). This ANOVA was not computed until after the treatments had begun, therefore it was not possible to reassign subjects.

Due to the signficiant differences observed in the pretest data for both grade level and treatment conditions, a 3X3 analysis of covariance (ANOCOV) was used to analyze the posttest data. The first factor was the treatment, which consisted of three levels: control, informed teachers, and cognitive modification. The second factor was grade level, and also consisted of three levels: fourth, fifth, and sixth grade. Table 4 contains the number of subjects, means, and standard deviations by cells for the pretest and unadjusted posttest data. Table 5 contains the adjusted MECA means used in the ANOCOV, with the pretest as the covariate. The results of the ANOCOV are reported in Table 6. The treatment effect was significant ($F = 6.35$, df = 2, 99, $p < .002$), and accounted for 9% of the variance in the MECA posttest scores ($\eta^2 = .0915$). There was no significant grade level effect ($F = 1.12$, df = 2, 99, $p > .32$). The intereaction effect also was not significant ($F = 1.96$, df = 4, 99, $p > .10$). Statistical power for grade level and interaction, for large effect sizes, was .96 and .91, respectively.

Insert Tables 4, 5, and 6 about here

Due to the significant treatment effect, Scheffé tests were computed between the three treatment levels. The adjusted mean score of the cognitive modification group was significantly lower than the adjusted mean of the control group (critical $K_{.05} = 4.44$; $\bar{X}_d = 5.06$). The adjusted mean score of the informed teachers group was not significantly different than the adjusted mean of the control group (critical $K_{.05} = 4.31$; $\bar{X}_d = 1.16$). The adjusted mean of the CM group was significantly lower than the adjusted mean of the informed teachers group (critical $K_{.05} = 4.49$; $\bar{X}_d = 6.22$).

DISCUSSION AND IMPLICATIONS

Cognitive modification significantly reduced communication apprehension among fourth, fifth, and sixth grade students, while informed teachers did not. In addition to the ANOCOV and Scheffé tests, this finding was supported by anecodotal information and comments made by several teachers and students. Both teachers and students found the time spent in the CM classes worthwhile. It would seem that removing students from regular classroom activities to participate in a CM class can be justified to parents, teachers, and administrators.

The fact that only 9% of the variance was accounted for indicates that the model used in this study should be expanded. Additional independent variables may be helpful in further accounting for the variance obtained. Independent variables which might be considered include sex of students, sex of treatment leaders, socio-economic level, and race.

It is important to note that the informed teachers in this study received only written information. A voluntary inservice or workshop approach would allow teachers to ask questions and perhaps become more committed and involved in the treatment of CA. Additionally, the teachers were given a

relatively short period of time (five weeks) to apply the information they were given. It is possible that with better training and a longer period of time the classroom teacher could be helpful in reducing CA.

The CM class leaders recommended that future classes be kept smaller and shorter. Half hour classes, over a longer period of time and with a maximum of five students, would seem ideal. More time should be spent on deep muscle relaxation; several different tapes utilizing different exercises and backgrounds would be helpful. Towards the end of the class, students might try doing some related activities during the sessions, such as speaking into a tape recorder, reading from a book, answering questions, or giving impromptu speeches.

An important issue should be raised concerning the difference between fear and dislike. McCroskey (1977) has pointed out that in order to measure CA, items should relate specifically to fear or anxiety about communication, rather than a desire to communicate or a report of communication behavior--although these concepts are related to the underlying construct of CA. All of the MECA items ask children to respond to various communication situations on a scale from "I like it a lot" to "I don't like it at all" (see Table 1). The students are not asked if they find the situations fearful, or if they dislike a given situation because it makes them nervous or uncomfortable. While it is possible that for most students the concepts of disliking a situation and feeling anxiety in a situation are isomorphic, it is also possible that for some they are not. For instance, a student who does not like school may respond negatively to all items inferring a school setting, but may not feel anxiety about communicating.

An examination of McCroskey's (1976) Personal Report of Communication Apprehension (PRCA) Short Form, and of his Personal Report of Communication Fear (PRCF) shows that approximately half of the items ask whether the individual likes or dislikes the situation, and the rest of the items ask if the situation is fearful or uncomfortable. It would seem desirable to include both concepts in the MECA instrument. This could be done in several ways. Faces from very fearful to very confident could be used in response to half of the items. Or additional definitions could be given for the five existing faces. With "I like it a lot" there could be "It doesn't bother me a bit," and "It's not scary at all." At the other end, with "I don't like it at all," the concepts of "It really bothers me a lot," and "It's really scary to me," could be added. Multiple indicators of apprehension, including self-reports, behavioral measures, and trained teachers' recommendations, might also be helpful. When working with young children, a variety of confounding variables may interfere with any one form of measurement.

Several implications for future research should also be considered. First, MECA was used as the only dependent variable, or outcome measure, in this study. Other post-measurements should be obtained or developed. While MECA can indicate a change in attitude, or internal feelings of anxiety, it does not necessarily indicate a change in behavior. Secondly, no attempt was made within this study to insure that students were using their new skills within the classroom. Future studies should investigate means of incorporating CM procedures in the classroom, and should include students in other grades.

Additional treatment approaches such as modeling, or the combination of CM and informed teachers, should be tried. Longitudinal studies using multiple dependent measures should be done to determine the long term effects of treatment. For many students, behavioral changes may occur later rather than concurrent with the reduction of the cognitive dimensions of the anxiety.

This study has clearly indicated that CA can be treated effectively at an early age. Cognitive modification procedures significantly reduced communication apprehension for 4th, 5th, and 6th grade students. Further attention by teachers, parents, administrators, and researchers to a number of instructional and social problems related to communication apprehension would benefit a great many children.

FOOTNOTES

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[2]Additional information regarding methods, procedures, and materials used to conduct the cognitive modification classes is available. Contact Karen R. Garrison, Foundations of Education, Auburn University, Auburn, Alabama, 36830.

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TABLE 1

Original and Revised MECA Items

Original Items

*1. How do you feel when you talk to teachers or your principal?
*2. How do you feel about talking to someone you don't know very well?
*3. How do you feel when you hold something and talk about it?
*4. How do you feel about talking to people who aren't close friends?
*5. How do you feel about talking when you have a new teacher?
6. How do you feel about talking a lot when you are on a bus?
7. How do you feel when you are picked to be a leader of a group?
8. How do you feel about talking a lot in class?
*9. How do you feel when you talk in front of an audience?
10. How do you feel about talking to other people?
11. How do you feel about trying to meet someone new?
12. How do you feel after you get up to talk in front of the class?
13. How do you feel when you know you have to give a speech?
14. How would you feel about giving a speech on television?
15. How do you feel about talking when you are in a small group?
16. How do you feel when you have to talk in a group?
*17. How do you feel when the teacher calls on you?
18. How do you feel about talking to all of the people who sit close to you?
*19. How do you feel when your teacher wants you to talk in class?
20. How do you feel when you talk in front of a large group of people?

Revised Items (*items were rewritten)

1. How do you feel about calling another student on the phone?
2. How do you feel when you know you have to give a report in class?
3. How do you feel about asking a clerk, or someone in a store, to help you?
4. How do you feel when your teacher calls on you to answer a question in class?
5. How do you feel about talking to adults?
9. How do you feel about inviting your classmates to come to a party?
17. How do you feel about talking to other students during recess?
19. When someone comes to visit your class, how do you feel about asking them questions?

TABLE 2

Primary Elementary Hierarchy

1. (1.8) You are talking to your friends at recess.
2. (2.5) You are playing a game with your friends.
3. (3.4) You are talking to your mom or dad.
4. (5.6) You are talking into a tape recorder.
5. (6.8) You are talking to your teacher.
6. (8.6) You are standing up telling the class about something you brought to school.
7. (9.5) You are reading out loud from a book in front of the class.
8. (12.1) You are giving a report in class.
9. (13.5) You are going to a new school and meeting new friends.
10. (14.9) You are giving a speech in front of lots of people.

Alternate Elementary Hierarchy

1. (.84) You are talking to your best friend.
2. (4.4) You are talking to someone on the phone.
3. (8.5) You are answering a question in class.
4. (9.1) You are asking for help in a store.
5. (9.5) You are teaching other people.
6. (10.6) You are acting in a play.
7. (13.3) You are giving a speech on T.V.

TABLE 3

Procedure For the First Session of
the Self Confidence in Speaking Class

1. Spend 5-10 minutes on introductions, getting to know the students, discussion of the class answering any questions.

2. Explain that this class is called Self Confidence in Speaking and that you will be teaching them how to feel relaxed, calm and confident when they have to speak with or in front of other people. If anyone asks why they are in the class, or why everyone isn't in the class, explain that the class has to be small and that you can do only one class at their school at a time, and that they were picked randomly to be in the class.

3. Explain that each class will start with a tape recording that teaches people how to relax, and that they will be laying down during the class, the lights will be off, and that most of the time they will keep their eyes closed.
   a. When you listen to the tape, do everything he tells you to.
   b. If you have any questions, wait and ask them when the tape is over.
   c. With the students, define and demonstrate the following terms which will be in the tape:
      1. tension--show what muscular tension is — demonstrate
      2. relaxation--show what muscular relaxation is — with fist
      3. bicep muscles
      4. study the tension--that means to think about how tension makes you feel.
      5. note the relaxation--that means to think about how relaxation makes you feel.

4. Have students lay down. Turn off the lights, close shades. Make sure students are as comfortable as possible. Begin the tape. Watch carefully, jot down any problems students have following directions. Remind them to keep their eyes closed.

5. Without singling out any student who had problems, go over any problems noticed, terms not understood; demonstrate as necessary. Answer any questions about the tape. (Students should sit up for this step.)

6. Explain that after the tape is over, we will begin imagining situations where you have to talk to people, or talk in front of people. You will only have to imagine these things, not actually do them. Most people feel nervous when they have to talk with or in front of other people. When they're nervous, people don't remember to think positively to themselves, instead they think things like I can't do this, I don't like to do this, I'm no good at this. In this class we will learn how to say positive things to ourselves, like: I can do this if I try, I can control my fear, this isn't so bad. In this class you will imagine that you are about to do something that makes you nervous, and then I will tell you some ideas of positive things to say to yourself. You should

say these things to yourself and also make yourself relax and stay calm. Whenever you feel nervous you can take deep breaths, and clench and unclench your fist. If you still feel nervous, then you will tell me by raising the index finger of your right hand (demonstrate).

7. Rewind and repeat the tape.

8. Do the first 1-2 steps in the hierarchy, as time allows. Follow all of the steps listed on the CM procedure sheet.

Cognitive Modification Procedures

Subjects should: 1) lie down and relax, keep eyes closed, 2) tell them they won't have to talk, 3) they will communicate with you by raising their index finger (demonstrate), 4) this tape will teach you how to relax and keep calm, 5) play tape and follow instructions.

1. Turn volume down at end of tape. DO NOT PRESS OFF BUTTON. Rewind later.

2. Quietly call out the name of each student to be sure that they are still awake, say: "If you can still hear the sound of my voice indicate that by raising the index finger of your right hand when I call your name."

3. Tell them that "Now we are going to start imagining situations. First we will imagine that you are going to do something, then we will imagine that you are doing it.

   Keep your eyes closed and really make your imagination work. Imagine that it is really happening, that you can see it and feel it happening. Remember that anytime you feel nervous or tense you can help yourself relax and feel calm by taking deep breaths and relaxing your muscles."

*4. Imagine that you are about to go out and talk to your friends at recess.
   a. Think positively. Think (out loud) to yourself. Say: I can do this. Relax, I'm in control, I can do it. It's good to be a little nervous, being a little nervous helps me to do better. Keep saying these positive things (out loud) to yourself. (Use 3-4 coping statements, vary each time. Drop "out loud" after 4-5 sessions.)
   b. Quiet--15 seconds--time it.
   c. Put that situation out of your mind, stop imagining it...
   d. Take deep breaths. Relax arms, shoulders, stomach, back, mouth, legs (several muscle groups, alternate on different steps, jumble up.)

*5. Imagine that you are talking to your friends at recess.
   a. If you feel nervous or tense at any time tell me by raising the index finger of your right hand.
   b. Quiet--15 seconds--time it.
   c. Put that situation out of your mind, stop imagining it...
   d. Take deep breaths. Relax arms, legs, stomach, back, shoulders (alternate each time).

*6. (Repeat Same Step) Imagine that you are talking to your friends at recess.
   a. If you feel nervous or tense at any time tell me by raising the index finger of your right hand.
   b. Quiet--30 seconds--time it.
   c. When the group successfully completes 15 & 30 seconds, say the following: You did it, you stayed relaxed and calm. Think (out loud) to yourself. Say: It worked, I can do it. That wasn't so bad. I can control my fear. Keep saying these positive things (out loud) to yourself. (Use 3-4 Self-Reinforcing statements, vary each time. Drop "out loud" after 4-5 sessions)
   d. Quiet--15 seconds--time it.
   e. Put that situation out of your mind, stop imagining it...
   f. Take deep breaths. Relax your arms, hands, neck, back, legs (alternate each time).

7. Repeat steps 4, 5, & 6 for the next item in the hierarchy.
   a. Watch for 45 minutes to be up.
   b. Leave time to do 1-2 low steps on the hierarchy, so students aren't left at a high step.
   c. Bring them back to the real world gently.
   d. Leave 2-3 minutes to discuss reactions to the class, answer any questions.

8. Be sure to record where you stop each day. At the start of each new class, do at least 2-3 steps done before, then keep progressing.

9. Please keep me informed as to how things are going. If you have any questions, problems, comments, etc., call me.

NOTE:

1. If a student raises their index finger, indicating anxiety, terminate the image, relax several muscle groups, and start with Step 4 (coping again on that same image.

2. If you still can't seem to get a subject over a particular item switch to an item that has approximately the same level on the alternate hierarchy.

3. If students rarely indicate anxiety, be sure they understand. If you have gone completely through the hierarchy, all 10 items, and still have several sessions remaining, begin going through the Alternate Hierarchy.

TABLE 4

MECA Pre and Post-Test

Means and Standard Deviations by Cells

Pretest

Treatment:		Control	Informed Teachers	Cognitive Modification	Total:
Grade:	$\bar{X}$	64.36	64.27	66.00	64.84
4	SD	3.07	5.40	4.55	4.37
	N	11	11	10	32
	$\bar{X}$	64.00	65.14	65.64	65.00
5	SD	1.41	2.51	2.95	2.47
	N	11	14	14	39
	$\bar{X}$	65.94	66.00	70.55	67.05
6	SD	3.60	3.76	6.71	4.84
	N	17	12	9	38
Total:	$\bar{X}$	64.95	65.16	67.09	
	SD	3.04	3.90	5.03	
	N	39	37	33	

Posttest-Unadjusted

Treatment:		Control	Informed Teachers	Cognitive Modification	Total:
Grade:	$\bar{X}$	58.91	58.82	60.50	59.38
4	SD	7.61	8.02	3.34	6.58
	N	11	11	10	32
	$\bar{X}$	60.09	60.50	54.71	58.31
5	SD	9.22	8.31	9.89	9.32
	N	11	14	14	39
	$\bar{X}$	62.53	67.17	58.89	63.13
6	SD	5.15	7.41	13.20	8.67
	N	17	12	9	38
Total:	$\bar{X}$	60.82	62.16	57.61	
	SD	7.16	8.51	9.65	
	N	39	37	33	

TABLE 5

Posttest Adjusted MECA Means

N	Treatment	Grade	Adjusted Mears
39	Control		61.44
37	Informed Teacher		62.60
33	Cognitive Modification		56.38
32		4	60.08
39		5	58.88
38		6	61.94

TABLE 6

Source Table: 3 X 3 Analysis of Covariance

Source	df	SS	MS	F	p
MECA Pretest	1	971.50	971.50	17.04	.0001
Treatment	2	724.18	362.09	6.35	.002
Grade	2	128.25	64.12	1.12	.32
Treatment X Grade	4	447.53	111.88	1.96	.10
Within	99	5643.53	57.00		
Total	108	7915.01			